

SOV/153-2-1-22/25

Generation of Triboelectricity ~~in non-conductive media~~ During the Catalytic Hydrogenation in non-conductive media

its mixtures with absolute ethanol. The electrification attains maximum velocity at a specific resistance  $p = 3 \cdot 10^{12}$  ohms.cm. At  $p = 10^{11}$  ohms.cm the electrification drops and ceases at  $10^{10}$  ohms.cm (in accordance with reference 4). Apparently, the velocity of charge and discharge depend in various ways on the resistance of the medium. The voltage is rapidly increased by intense stirring. In the next experimental series a skeleton nickel catalyst was employed additionally (method of reference 5).

Also in this case maximum voltage occurred at  $p = 3 \cdot 10^{12}$  ohms.cm. Consequently, the process of electric charge is intensified by a fine-disperse powder with large surface ( $\approx 70 \text{ m}^2/\text{g}$ ). The action on the course of the process is to be taken into account during the hydrogenation in solvents with high specific resistance. The extension of the interatomic distance by the electrostatic field is bound to increase the reactivity of molecules of unsaturated compounds. There are 2 figures and 7 references, 6 of which are Soviet.

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Generation of Triboelectricity: ~~During the Catalytic Hydrogenation in~~  
Non-conductive Media

SOV/153-2-1-22/25

ASSOCIATION: Institut khimicheskikh nauk AN Kaz.SSR i Kazakhskiy  
gosudarstvennyy universitet (Institute of Chemical Sciences of  
the Academy of Sciences of the Kazakh SSR and Kazakh State  
University)

SUBMITTED: December 20, 1957

Card 3/3

CHERDINTSEV, V.V.; SHMONIN, L.I.; OSTAPENKO, V.F.; KHALDEYEV, O.D.;  
KASHKAROV, L.L.

Neutron radiation of the earth. Geokhimiia no.3:261-267 '60.  
(MIRA 14:5)

1. Kazakhskiy gosudarstvennyy universitet imeni S. M. Kirova,  
Alma-Ata.

(Neutrons)

(Nuclear geophysics)

39215

S/263/62/000/007/014/014

1007/1207

AUTHOR: Ostapenko, V. F., Khaldeyev, O. D.

TITLE: Underground well-type gamma spectrometer

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. Ismeritel'naya tekhnika, no. 7 1962, 54, abstract 32.7.363. "Collection nauchn.-rabot. Kafedry optiki i Kafedry eksperim. fiz Kazakhsk. un-ta", no. 2,960, 91-96

TEXT: A device is described for the detection of gamma radiations emitted during elastic scattering of fast neutrons from nuclei of various elements. The neutron source (Po-Be) is moved in the (underground) well together with the scintillation chamber and the analyzer of the gamma spectrometer. The detector consists of a NaI(Tl) crystal and the ФЭУ-29 (FEU-29) photomultiplier. The crystal is protected from direct neutron radiations by lead and boron-containing layers having a thickness of 5 and 25 cm respectively. Pulses emitted from the analyzer are recorded by the ПЧ-64 (PS-64) counter mounted on the above-ground section of the unit. The FEU-29 photomultiplier is fed from a one-valve converter located in a common casing with the analyzer. The paper also contains information on experiments, and brings a schematic diagram of the analyzer. There are 2 figures and 5 references.

[Abstracter's note: Complete translation.]

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KHALDEYEV, P. I.

94-58-6-12/19

AUTHOR: An Editorial note on p 18 is followed by contributions to the discussion by a number of authors.

TITLE: Discussion on the Design of Medium and Low Output Industrial Power Stations (Diskussiya po voprosu proyektirovaniya promyshlennykh elektrostantsiy sredney i maloy moshchnosti)

PERIODICAL: Promyshlennaya Energetika, 1958, <sup>13</sup>Nr 6, pp 18-33 (USSR)

ABSTRACT: Editorial note p 18

The unsatisfactory position in the equipment, design and construction of small and medium industrial power stations is seriously retarding power development. In Promyshlennaya Energetika, 1956, Nr 9, M. I. Lavrov published an article for discussion on this subject. We must agree with Lavrov that the standard designs issued by Promenergoprojekt are unsatisfactory and new types of industrial Heat and Electric power stations are required. Small, costly, inefficient power stations are displacing small and medium heat and electric power stations simply because these latter are too big and complicated. Small and medium power stations should be cheap and simple and their design should be thoroughly reviewed. Industrial

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gas turbines should be introduced. In the discussion published below there are no contributions from Works making power equipment and they and staff of Councils of National Economy are asked to join in.

Professor Golubtsov, V. A. (Corresponding Member, Academy of Science USSR), pp 18-20

Work on the development of cheap and simple industrial power stations is lagging. In 1952, at MONITOE M.I. Lavrov made a number of suggestions about drawing up new types of medium and small industrial power stations, and in 1956 he published an article on the subject in Promyshlennaya Energetika, Nr 9, based on his earlier report. In the intervening five years a number of his ideas had been confirmed but they had never been adequately discussed. Concerning Lavrov's article, it is a good idea to have individual feed arrangements for each set; it is inadvisable to have more than one steam reduction and cooling installation because of the equipment and piping required. Lavrov's comments on the poor characteristics

Card 2/11 of feed pumps are correct. Small instruments are required

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so that control panels can be made cheaply. The proposal to reduce the size of deaerator tanks requires further consideration. The use of semi-outdoor construction is progressive. The question of local mechanisation and avoidance of the use of bridge cranes is important. neither is a crane needed in the boiler house. It is correct to lighten the turbine foundations and the building structure. Some underground communications must, however be retained. Not all the author's suggestions are fully worked out or acceptable, the main thing is that he has come up with new and critical ideas.

Zakh, R. G., Candidate of Technical Science (All-Union Engineering-Constructional Correspondence Institute) pp20-21. It is very necessary to revise the construction of power stations of 8 to 12 MW and Lavrov's proposals are generally acceptable. In smaller power stations use should be made of steam at 130 - 140 atms, 535-565°C using pearlitic class steel. Detail proposals are made for simplification of the thermal circuit of the power station. Boiler houses Card 3/11 can be simplified when burning pulverised fuel.

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Standardisation of boiler sets is discussed. Air heaters should be made smaller. Forced circulation boilers of Lamont type should be introduced because they are smaller. Construction should be speeded up using prefabricated standardised concrete parts. Unit type sets made within the limitations of the railway loading gauge can help to make construction cheaper.

Khaldeyev, P. I., Engineer (Giprosakhar)

~~It is important to~~ cheapen and simplify small power stations because of the large number of heat and electric power stations that it is proposed to build. Lavrov's cost curve should not rise so steeply for small sets, because small sets are simple and of low capital cost. A revised cost curve for small heat and electric power stations is given in Fig.1. Capital costs of types 1 and 2 heat and electric power stations are tabulated and the reduced costs that result from fuel and ash handling and water supply in type 1 stations is evident, capital savings are up to 22%. Question of fuel and ash handling and water treatment are then discussed in detail. Ammonia-sodium cation treatment is recommended as being simpler

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for sugar works than H-Na cation treatment, this ammonia process should be widely used in other branches of industry. Effective measures must be taken to keep ammonia out of the steam. The use of back pressure turbines is recommended. The use of pre-assembled distribution equipment for 6 kV makes it possible to simplify the main distribution equipment. Layout of electrical control and distribution gear is discussed. Fuel handling problems are then considered. The arrangement of power stations of 6 - 8.5 MW shown in Fig.2 is in accordance with the principles explained. of the two arrangements given the first is to be preferred. Most of Lavrov's suggestions for making stations cheaper and simpler are agreed with. Medium power stations should combine the practice of large and of small stations, but hitherto they have been based only on that of large stations. Some of Lavrov's ideas are debatable. Unit arrangement of feed means having more feed pumps and deaerators. Whilst unit working of turbines and boilers is desirable the necessary uniformity of loading cannot

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always be achieved in industrial stations. If feed lines are not linked full use cannot be made of deaerator capacity of lightly loaded sets. Central control of the thermal and mechanical part of the station is very desirable, but cannot be achieved in most small stations with chain grate stokers with fuel of variable quality because complex automation is not possible. A number of requirements for the near future are listed: load factors should be improved by combining different types of loading; fuel should be delivered in loads equal to about half the storage capacity; equipment suitable for outdoor operation should be supplied; other improvements are listed.

Tager, S. A., Candidate of Technical Science (Power Institute, Ac. Sc. USSR) pp 25-27.

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Small and medium power stations have, in recent years, been built on the model of large regional power stations, which is a mistake. Much work is required to make industrial power stations cheaper and simpler. The physical arrangement of deaerators and water treatment

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plant is discussed. The idea of unit construction of boiler, turbine, deaerator, feed pump, reduction and cooling plant is hardly suitable for small and medium stations, partly because the various components must be convenient and reliable. It is often quite impossible to give each set its own reduction and cooling installation. Boiler house layout is discussed, the arrangement without basement is preferred. The climatic conditions of the USSR do not favour open air boiler houses as a general solution. Plant sizes can be cut down and boiler costs reduced. For burning small fuel, furnaces with liquid slag removal offer promise, particularly cyclone furnaces and other types recently rig tested at the Power Institute, Ac.Sc., USSR. Modern mechanised chain grate furnaces must be used. Their advantages are described. The main reason why they have not been used more extensively is that existing Soviet designs are out of date. Chain grates can be used to burn coal with high fines content, and they have been used with success for many years at the Chelyabinsk Regional Electric Power

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Station, burning local brown coal. The new method of burning hot fine fuel, developed by the Power Institute Ac.Sc. USSR makes possible complete combustion of material carried over and trapped in gasways and ash arresters. A further factor hindering the introduction of chain grate stokers is the disorganisation of fuel supply which leads to wide variations in fuel quality at any particular power station, so that the plant has to be about universal - greater uniformity of fuel quality is required. Meanwhile the fuel balance is changing, and fuel oil and natural gas are particularly suitable fuels for small power stations. In view of this changing situation small power stations should be designed to run on natural gas and oil fuel and gas turbine and diesel stations should be designed. Because of its scattered nature there is no research or design institute for industrial power supply and there should be.

Kachinskiy, R. K. (Engineer) (Ukrgiprosakhar), p 28  
The unit system of operation is supported on grounds of Card 8/11 reliability and economy. Pressures of 60-80 atms should

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be used for power stations of 8 - 12 MW. Unit feed lines are desirable, but there should be automatic connection of spare feed pumps. Fuel handling equipment can be simplified. The standards of the Boiler Inspectorate should be simplified.

Kuritsyn, F. F. pp 28-29

It is most important to estimate industrial loads correctly or the station will be underloaded, alternative forms of power and heat supply should be fully considered. Existing constructional standards are in urgent need of revision and are retarding the work of design organisations. Not enough attention is paid to the demands of the final customer. In Light Industry during the 5th Five Year Plan not a single project put up by TEP and Promenergoprojekt for power stations passed without important changes of output or construction and in some cases they were rejected outright. A number of industrial power stations started up in the last few years are only running on half load.

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Lavrov, M. I. (Promenergoprojekt), pp 29-33

The original author then sums up the discussion at some length. An industrial power station may take 1-2 years to design and 2-5 years to construct, which is too long. Therefore, all sorts of locomobiles, diesels and power trains are installed and they are very inefficient and expensive. This is also the reason for the rapid increase in small and inefficient boiler houses. Examples of this are given. Most of the proposals contained in the original article receive general support. Objections are raised against the use of unit construction because of the difficulty of regulating the loads on the units, or because more feed pumps are needed. However, load distribution and regulation really only needs special consideration when loads are unusually variable. Careful comparisons have shown that in fact unit schemes do economise on materials and equipment. The main difficulty with unit schemes is to cover the heat load and the use of special boilers for this purpose is recommended; such boilers are in fact being widely installed. Many of the

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suggestions made in the article have proved themselves in practice but are still not being widely adopted. The various recommendations are then repeated and reinforced. Objections against semi-outdoor boiler houses are met with the reply that the Ministry of Electric Power Stations has recommended their use for large stations in a number of climatic regions and has recommended outdoor installation of induced draught fans and ash arresters in all regions. All that then remains of the boiler house is the bunkers and ash handling equipment. When power stations are reconstructed it is often not possible to use the old boiler houses. Progress that is being made in the use of higher steam conditions is described, but it is not yet fast enough. In the discussion objections were raised to the proposal to avoid underground services, and in reply accounts are given of practical experience with the recommended construction. A number of further recommendations are then summarised under the following headings: fuel and boiler room; machine room; Heat and Electric Power Stations as a whole; construction, and auxiliary shops. There are 2 figures and 2 tables.

Card  
11/11

1. Industrial plants-USSR
2. Power plants-Operation-USSR
3. Power plants-Design
4. Power plants-Economic aspects
5. Power plants-Standardization

MORDKHELOVICH, Izrail' Isaakovich [deceased]; KHALDEYEV, Petr Ivanovich;  
SIDOROV, V.N., red.; VORONIN, K.P., tekhn. red.

[Mechanization and automatization of industrial boiler rooms]  
Mekhanizatsiia i avtomatizatsiia promyshlennykh kotel'nykh. Mo-  
skva, Gos. energ. izd-vo, 1961. 182 p. (MIRA 14:8)  
(Boilers) (Automatic control)

YURENEV, Vladimir Nikolayevich; KHALDEYEV, P.I., inzh., red.;  
BUL'DYAYEV, N.A., tekhn. red.

[Industrial electric power plants] Promyshlennyye elektrostantsii.  
Moskva, Gosenergoizdat, 1963. 463 p. (MIRA 16:7)  
(Electric power plants)



SOV/147-58-3-3/18

AUTHOR: Khaldeyev, V.M.

TITLE: Evaluation of the Effort in the Lifting Jack of the Retractable Undercarriage During the Process of Retraction (Opredeleniye potrebnogo usiliya v pod'yemnye-podkose prostranstvennogo mekhanizma pro uborku shassi)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya tekhnika, 1958, Nr 3, pp 16-24 (USSR)

ABSTRACT: The paper presents an analytical method of solution of the problem, which does not necessitate the knowledge of the kinematic solution of the mechanism of the undercarriage. During the process of retraction, the undercarriage is acted upon by the following forces: 1) mass forces - gravity and inertia forces the latter resulting from the acceleration of the aircraft and from the motion of the undercarriage with respect to the aircraft. 2) Aerodynamic forces - parasitic drag of the undercarriage. 3) friction forces - due to friction at the joints. The usual practice is to solve the problem statically, considering the equilibrium of the forces in the plane perpendicular to the axis of rotation of the undercarriage and neglecting the inertia forces but

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taking into account the frictional forces by means of a corrective coefficient. However, in the case of supersonic aircraft which have a large excess of power during the take-off climbing, the undercarriage is being retracted under conditions of high acceleration and of rapidly growing parasitic drag so that the inertia forces are substantial and should not be neglected. Blandov (Ref.1) shows that even in the case of a planar retractive mechanism when the time of the retraction is 4 sec the effect of inertia forces amounts to about 26% of the static forces. Denoting the weight of the undercarriage by  $G_{sh}$  and its parasitic drag by  $Q_{sh}$ , and with the axis of rotation of the retracting motion  $MN$  ( $m'n'$  and  $m''n''$  in the two views of Fig.1) the inertia forces are as given in Eq.1. If  $E$  ( $e', e''$ ) is the centre of gravity of the undercarriage then considering it as a compound pendulum the point of application of the inertia forces is the point  $U(u', u'')$  i.e. the centre of oscillation. The additional inertia forces due to acceleration ( $d^2x_0/dt^2$ )

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of the aircraft are given by Eq.2. In order to facilitate the analysis these forces may be transferred to the point D(d',d'') where the lifting jack joins the leg, their magnitudes being given by Eq.3. (In the present analysis the angular motion of the hinge D is neglected since in practical cases the angle of rotation is small, about 10°, and the error due to this does not exceed 2%) These forces being in equilibrium, we can apply now the principle of virtual displacements and so find the required effort of the jack T, Eq.4, where

$$X = 1 + \frac{dA_{fp}}{dh} \frac{1}{\eta_x}$$

is the friction factor, due to friction at the joints and  $dA_{fp}$  is the work (elementary) against the frictional forces at the joints. The friction factor may be assumed to remain constant and equal to about 1.15 to 1.30 (e.g. in the Tu-104 aircraft it was found to be 1.3). The derivatives  $dx/dh$ ,  $dy/dh$  and  $dz/dh$  can be determined from the geometry of the

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undercarriage mechanism. Consider now any two neighbouring positions of the hinge,  $D_i$  and  $D_{i+1}$ , then Eq.5 and 6 give the relations between the two positions and the axis of rotation of the undercarriage, their solution being given by Eq.7. Next Eq.3 may be expressed in the form of Eq.8 where  $V_h = dh/dt$  is the velocity with which the undercarriage is being raised. Then with the help of Eq.6 and some substitutions (5) we get the Eq.9 whose solution is Eq.10. The acceleration of the aircraft during the process of retraction of the undercarriage can be determined from the equation of motion in climbing, but since the maximum acceleration will occur in the horizontal flight, Eq.11 may be used, where  $\Delta P = P - Q$  is the excess of the thrust over the total drag of the aircraft (with the undercarriage down) at the ground level. Using now Eq.8, 11 and 3 together with Eq.4 leads to Eq.12. To solve Eq.12 the characteristics of the system (lifting mechanism and the undercarriage) must be known, i.e. we must know the

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relation between the effort of the drive and the rate of motion of the undercarriage, like that shown in Fig.2, where a hydraulic drive is presented,  $T = pF$  being the effort (in kg),  $p$  being the hydraulic pressure and  $F$  the cross-sectional area of the lifting jack.  
 $\eta_0$  - is the volumetric efficiency of the hydraulic system  
 $Q$  - is the capacity (discharge) of the pump (in liter/min)  
 $q$  - is the share of the capacity of the pump taken by the lifting jack.

A change of the co-ordinates (and scale) enables them to transform this diagram into the characteristic diagram of the lifting tackle  $[T = f(V_h)]$ . Once the relation  $T = f(V_h)$  of the drive, as well as the relation  $T = f(h)$ , is known, it is possible to develop the relation  $V_h = f(h)$ , which is required for determination of  $V_h$  and  $dV_h/dh$ . However, this can only be done by the method of successive approximations. The procedure is as follows:  
 1) Assume a number of successive positions of the hinge D (i.e. the successive length of the lifting jack) so that

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the relevant coefficients and derivatives appearing in Eq.12 may be calculated by means of Eq.7 and 10. At the same time the values of  $r_a/r_d$ ,  $r_e/r_d$ ,  $r_u/r_d$  may be either computed or measured directly from the drawings of the undercarriage system.

2) Compute  $T_1$ ,  $T_2$ ,  $T_3$  and their sum  $T_{CT}$  and then draw the graph  $T_{CT} = f(h)$ .

3) From the graph (Fig.2) and the characteristics of the pump, determine the first approximation  $V_h^{(1)} = f(h)$ .

4) From the above characteristic determine  $V_h^{(1)}$  and  $dV_h^{(1)}/dh$  and obtain  $T_4^{(1)}$  and  $T_5^{(1)}$  (first approximation).

5) From the new graph  $T(2) = f(h)$  so obtained, where  $T(2) = T_{CT} + T_4^{(1)} + T_5^{(1)}$  determine the new velocity characteristic of the lifting jack (second approximation) and also  $T_4^{(2)}$ ,  $T_5^{(2)}$ , etc. etc.

The method is highly convergent and in practical cases the second approximation will suffice. The author solves

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an example, the undercarriage being that shown in Fig.1  
and the successive computations and resulting from them  
graphs being shown in Fig.3, 4, 5 and 6. There are  
6 figures and 1 Soviet Reference.

ASSOCIATION: Kazanskiy Aviatsionnyy Institut, Kafedra Konstruktsii  
i proyektirovaniya Samoletov (Kazan' Institute of  
Aeronautics, Chair of Construction and Design of Aircraft)

SUBMITTED: 15th January 1957.

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3/123/60/000/009/017/017  
A004/A001

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1960, No. 9, p. 469,  
# 46853

AUTHOR: Khaldeyev, V.M.

TITLE: A Graphic Method of Determining the Position of the Spatial Axis of  
↳ Landing Gear Turning During Retraction

PERIODICAL: Tr. Kazansk. aviats. in-ta, 1958, Vol. 38, pp. 301-306

✓B

TEXT: In the suggested graphic method the initial data take into account the grouping peculiarities of the units of high-speed aircraft retractable landing gears, which makes it possible to set the wheels in the prescribed position, ensures the preservation of the necessary landing gear position in the lowered state and makes it possible to fasten them without additional reinforcement of the wing frame. The suggested method permits a checking of intermediate structures which results in an increased accuracy of the graphic solution. Plotting can be performed immediately on the lofting in a 1:1 scale, moreover the

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Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1959, Nr 21, p 233 (USSR)  
SOV/123-59-21-88900

1,200 16.7000  
AUTHOR: Khaldeyev, V.M.

TITLE: On the Problem of Designing Ball Joints for Airplane Mechanisms

PERIODICAL: Tr. Kazansk. aviats. in-ta, 1958, Vol 43, pp 77 - 86

ABSTRACT: In connection with the application of hinged bearings<sup>1</sup> as ball joints in airplane designs, the author investigates the problem of selecting the optimum position of the axis of hinged bearings. A graphical method of solving this problem is described, based on simple principles of descriptive geometry, which warrants sufficient accuracy.

E.I.I. ✓

Card 1/1

FRALDEYEV, V.M., Cand Tech Sci (dis) "Selection of rational  
parameters of classic techniques <sup>in the</sup> planning of <sup>high aircraft</sup> ~~ground~~ ~~air~~ ~~operations~~."  
Moscow, 1969. 15 pp. (in of Higher Education "USSR. Russia" Aviation  
Academy), 150 copies (M, 72-50, 12.)

-50-

*Khaldeyev, V. M.*

AID Nr. 966-10 14 May

SELECTION OF OPTIMAL PARAMETERS OF AIRCRAFT MECHANISMS  
(USSR)

~~Khaldeyev, V. M.~~ Izvestiya vysshikh uchebnykh zavedeniy. Aviatsionnaya  
tekhnika, no. 1, 1963, 66-79. S/147/63/000/001/008/020

An engineering method is described for the design of aircraft mechanisms which are to be set within a strictly limited contour. The particular case of a landing-gear mechanism is considered. The best system is selected by means of a comparative evaluation criterion consisting of the maximum of the term  $\xi H$ , where

$$\xi = \frac{\int_0^H T \cdot dh}{T_{\max} \cdot H}$$

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AID Nr. 966#10 14 May

SELECTION OF OPTIMAL PARAMETERS [Cont'd]

8/147/63/000/001/008/020

T and  $T_{max}$  being normal and maximum forces and H, the total operational cycle of the drive. An analytical study of the effect of inertia and friction forces on the drive load is presented. An equation of the required drive force is derived and expressions for inertia and friction forces are derived. Four different versions of the mechanism are studied. Kinematic and constructional size limits for principal links are formulated. Theoretical and experimental curves of required forces on the landing gear of TU-104 aircraft are given in a graph. The applicability of the method and the effect of adverse forces are discussed.

[ANB]

Card 2/2

KHALDEYEV, V.M.

Selecting efficient parameters for mechanisms in designing  
high-speed aircraft. Izv.vys.ucheb.zav.;av.tekh. 6 no.1:  
66-79 '63. (MIRA 16:6)  
(Airplanes—Design and construction)

KHALDEYEV, V.M. (Kazan')

Graphic definition of the position of the axis of landing gear  
rotation during the retraction. Trudy KAI 38:301-306 '58.

(MIRA 16:8)

(Airplanes--Landing gear)

ACCESSION NR: AP4009647

S/0147/63/000/004/0086/0095

AUTHOR: Khaldeyev, V. M.

TITLE: A graphic analysis method for designing mechanisms

SOURCE: Izvestiya vysshikh uchebnykh zavedeniy. Aviatsonnaya tekhnika, no. 4, 1963, 86-95

TOPIC TAGS: plane mechanism, plane mechanism design, graphostatics, graphic analysis design method, force diagram, drive force, kinematic parameter, aircraft design

ABSTRACT: The proposed graphic analysis method is based on graphostatic procedures and simple evolved principles which enable one to write the necessary analytic relationships between the force required on the drive and kinematic parameters directly from the force diagram. Three methods are discussed (see Fig. 1 in the Enclosure). Method III is judged to provide the most efficient basis for analysis and force calculation of mechanisms. Three principles are formulated for the compilation of these analytic relationships from the force diagram, allowing the illustration of any given force (or reaction) as a function of a known force and of geometric

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ACCESSION NR: AP4009647

parameters of a mechanism. The proposed procedure is suitable for use in designing any plane mechanism, especially when placement of the latter is rigidly limited by composition factors. The procedural sequence is as follows: A basic structural layout of a mechanism is selected; a force diagram is then evolved graphostatically for an intermediate location; the analytic relationship is written, then the proper kinematic dimensions of the mechanism are selected on the basis of the latter in relation to actual composition factors. The calculated location of the mechanism is determined and force calculations are completed. Orig. art. has: 5 graphs and 6 formulas.

ASSOCIATION: None

SUBMITTED: 05Apr63.

DATE ACQ: 12Feb64

ENCL: 01

SUB CODE: AP

NO REF SOV: 004

OTHER: 001

Card

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CHALDIEJEW, W.M. [Khaldeyev, V.M.]

Selection of optimum characteristics of mechanisms for high-speed flying vessels. Techn letn 19 no.10/11:259-266 O-N '64.

*KHALDEYEVA, I. I.*

ANDRONIKASHVILI, E. L., BIBILASHVILI, M. F., VARDENGA, G. L., GVALADZE, T. V.,  
JAVRISHVILI, A. K., KAZAROV, R. E., KURIDZE, R. V. and KHALDEYEVA, I. I.

"Angular Distribution of the Penetrating Component of Extensive Air Showers  
at the Depth of 200 m.w.e."

Report presented at the International Conference on Cosmic Rays and  
Earth Storm, 4-15 Sep 61, Kyoto, Japan.

Physical Institute, Academy of Sciences, Georgia SSR

BARNAVELI, T.T.; BIRILASHVILI, M.F.; GRUBELASHVILI, G.A.; DZHAURASHVILI,  
A.K.; KAZAROV, R.Ye.; KERIDZE, R.V.; KHALDEYEVA, I.V.

Properties of the penetrating component of extensive air  
showers at a depth of 200 meter water equivalent. Izv. AN  
SSSR. Ser. fiz. 28 no.11:1894-1895 N '64. (MIRA 17:12)

1. Institut fiziki AN GruzSSR.

BARNAVELI, T.T.; BIBLASHVILI, N.P.; DEMAVRISHVILI, A.E.; GELFELASHVILI, G.A.;  
KAZANOV, R.Ye.; KURIDZE, R.V.; KHALDEYEVA, I.V.

Study of the spatial distribution of  $\pi$ -mesons in extensive air  
showers at a depth of 200 meters of water equivalent. Soob. AN  
Gruz. SSR 35 no.1:59-67 J1 '64.

(MIRA 17:10)

1. Institut fiziki AN GruzSSR, Tbilisi. Predstavleno akademikom  
E.L. Andronikashvili.

KHALDEYEVA, I. V.

4

S/048/62/026/005/019/022  
B108/B102

3.24/10

AUTHORS: Andronikashvili, E. L., Bibilashvili, M. F., Vardenga, G. D.,  
Gvaladze, T. V., Dzhavrisvili, A. X., Kazarov, R. Ye.  
Kuridze, R. V., and Khaldeyeva, I. V.

TITLE: Angular distribution of the penetrating component of extensive atmospheric showers at a depth of 200 m water equivalent

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 5, 1962, 682-684

TEXT: The angular distribution of the axes of extensive atmospheric showers was determined by various methods, mainly using a cloud chamber. The direction of the axis was established from the electron-photon component. At a distance of  $0.5H$  or less from the shower axis ( $H$  - depth at which the detector is placed under the surface), the particle distribution is given by  $I_{\theta} = I_0 \cos^{8.5} \theta$ , as has been established by various authors. The present authors' results agree with this law. There are 2 figures.  
Card 1/1

✓  
B

SHVILI, E. L.; BARGAVELI, T. T.; BIBILASHVILI, I. F.; GEGIASHVILI, G. A.;  
ZIT, A. K.; KOZAROV, R. Ye., KURIDZE, R. V.: KHALDEYEVA, I. V.

Investigation of the properties of penetrating components at a depth of 200 mwe.

Submitted for the 8th Intl. Conf, on Cosmic Rays (IUPAP), Jaipur, India,  
1963.

ANDRONIKASHVILI, E.L.; BIBILASHVILI, M.F.; VARDENGA, G.D.; GVALADZE, T.V.;  
DZHAVRISHVILI, A.K.; KAZAROV, R.Ya.; KURIDZE, R.V.; KHALDEYEVA, I.V.

Angular distribution of the penetrating component of wide atmospheric showers in conditions equivalent to a 200 m. depth of water. Izv.AN SSSR.Ser.fiz. 26 no.5:682-684 Ap '62.

(MIRA 15:5)

(Cosmic rays) (Nuclear reactions)

ACCESSION NR: AP4042889

8/0251/64/035/001/0059/0068

AUTHORS: Barnavoli, T. T., Bibilashvili, M. F., Dzhavrisvili, A. K., Grubelashvili, G. A., Kazarov, R. Ye., Kuridze, R. V., Khuldeyeva, I. V., et al.

**TITLE:** investigation of the spatial distribution of mu-mesons in extensive atmospheric showers at a depth of 200 meters (water equivalent)

SOURCE. AN GruzSSR. Soobshcheniya, v. 35, no. 1, 1964, 59-66

**TOPIC TAGS:** meson, mu meson, atmospheric shower, cosmic ray, nuclear physics, atmospheric physics, meson spatial distribution

**ABSTRACT:** A study of the spatial distribution of the penetrating component of extensive atmospheric showers has been made in the underground laboratory of the Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics of the Academy of Sciences of the Georgian SSR). The selected geometry of the experiment ensured measurement of the density of the mu-meson flux to a distance of 80-100 m from the shower axis. An attempt was made to compute the total quantity of penetrating particles with a minimum energy of 40 Bev and their contribution to the energy balance of the shower and to detect nonuniformities in the mu-meson flux. Determination of the mu-meson component characteristics at a

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ACCESSION NR: AP4042889

depth of 200 m (water equivalent) required determination of the direction of arrival of the axis of the shower because the distance between the mu-meson detectors underground and the axis of the shower recorded at the surface is dependent on the angle of inclination of the axis. Arrangement of the underground apparatus is shown in Fig. 1 of the Enclosure. Scintillation apparatus was used for detecting showers and the inclination of their axes. A pulse from the coincidence circuit of this apparatus triggers both the OK-19 oscillograph and a blocking generator controlling the operation of two modulators using TGI-1-130/10 thyatrons, one of which triggers the pulse hodoscopes situated on the surface around the building, as shown in Fig. 2 of the Enclosure; another thyatron controls the underground mu-meson detectors. The underground part of the apparatus consists of a system of eight hodoscopic detectors, each separated by lead blocks 10 cm thick. Each detector has an area of 0.5 m<sup>2</sup> and the total area of the underground detectors is 4 m<sup>2</sup>; each detector has a triple-coincidence circuit. During the 1,920 hours of operation the underground detectors were triggered 415 times. The mean dimension of showers (with respect to quantity of particles) was  $6 \times 10^5$ . Densities are given in a table. An expression is given for the distribution, and the results are compared with similar work done at the NIIyF MGU. Orig. art. has: 3 formulas, 6 figures and 1 table.

ASSOCIATION: Institut fiziki Akademii nauk Gruzinskoy SSR, Tbilisi (Physics Institute, Academy of Sciences of the Georgian SSR)

Card 2/6

Submitted: 20 Nov '63

KHALDIN, A.K., polkovnik meditsinskoy sluzhby; NABOKIN, A.N., kapitan  
intendantskoy sluzhby

Re-equipping operating rooms. Voen.-med.shur. no.7:9-12 J1 '57.  
(OPERATING ROOMS,  
equipment (Rus))

KHALDIN, N.

Photographic enlarger for any forms. Sov.foto 23 no.3:31 'Mr '63,  
(MIRA 16:4)  
(Photography--Equipment and supplies)

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721710014-8

KHAI DIN NH

5

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721710014-8"

*Khalidin, N.N.*

1-5/4

AUTHORS: Kondrashev, L.P., Nemenov, L.M., Novikov, G.M., Pastovoyt, Yu.N., Khalidin, N.N. and Chubakov, A.A.

TITLE: A Gas Supply Bench for the Ion Source of a Cyclotron.  
(Stend gazovogo pitaniya ionnogo istochnika tsiklotrona)

PERIODICAL: Priory i Tekhnika Eksperimenta, 1957, Nr 3, pp.23-25,  
(USSR)

ABSTRACT: A description is given of a working gas supply bench for the ion source of a cyclotron. The gas supply bench is shown diagrammatically in Fig.1. It consists of a system of gas holders, an electrolyser for obtaining deuterium, a manometer, a device for measuring gas flow, and various valves for adjusting this flow. The gas in the gas holders is always at atmospheric pressure. A special admission valve is described and is shown in Fig.2. The system admits a constant amount of gas and is simple to service. The admission can be regulated in the range 0-50 cm<sup>3</sup>/hour. There are 3 diagrams, no tables and 1 Russian reference.

SUBMITTED: January 16, 1957.

AVAILABLE: Library of Congress.

Doc 1/1 1. Ions 2. Cyclotrons 3. Gas-Instrumentation

KHALDIN, N.N.

SOV-120-58-1-2/43

AUTHORS: Kondrashev, L.F., Kurashov, A.A., Linev, A.F., Sidorov, V.A., Sokolov, N.I. and Khaldin, N.N.

TITLE: A Spectrometer for Fast Neutrons (Spektrometr bystrykh neytronov)

PERIODICAL: Pribery i Tekhnika Eksperimenta, 1958, Nr 1, pp 17-21 (USSR)

ABSTRACT: The measurement of the fast neutron spectrum is one of the most difficult problems of experimental nuclear physics. The most common method employed in neutron spectroscopy in the energy region of a few MeV is the method of proton recoil. The measurement of the neutron spectrum is reduced to the measurement of the spectrum of the recoil protons which are produced by the neutron beam in a specimen containing hydrogen. There are a number of methods of measuring the proton spectrum. One of these is the nuclear emulsion method but this is very time-consuming and therefore not always convenient. The other methods employ coincidence circuits. Such a system is usually called a "telescope". These telescopes can be used in two ways. In the first method one measures the range of the protons in special absorbers between the counters and in the second method one measures the amplitudes of the pulses from a scintillation counter which is the last

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A Spectrometer for Fast Neutrons.

counter of a telescope. The first of these was used in the present work. The telescope (Fig.1) consists of 4 proportional counters. A polyethylene "radiator" is placed in front of the first counter and two sets of aluminium absorbers are used to measure the range of recoil protons in aluminium. The first and main set of absorbers is placed in front and the third counter and the second set of filters in front of the fourth one. The first, second and third counters are in coincidence and the fourth in anti-coincidence. Thus one records recoil protons formed in the radiator and whose path ends before the fourth counter. An estimate of the proton loss due to multiple scattering was made, using the curves of Dickinson and Dodder (Ref.2). The figure obtained for this loss was less than 5% of the recoil protons. A photograph of the telescope is shown in Figs.2 and 3. The telescope can be used in studying not only neutrons but also charged particles. The spectrometer was used to study the reaction  $T(p, n) He^3$  for proton energies between 7 and 12 MeV. The neutrons were obtained at a target of a 1.5 m

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S/120/60/000/004/012/028  
E032/E414

AUTHORS: Kondrashev, L.F., Rybin, S.N., Sokolov, N.I. and  
Khaldin, N.N.

TITLE: Thin Vacuum-Tight Windows

PERIODICAL: Priory i tekhnika eksperimenta, 1960, No.4, pp.102-105

TEXT: In nuclear reaction studies it is frequently necessary to have thin vacuum-tight windows. The present paper describes some of the designs of such windows which were used in experiments on a 1.5 m cyclotron in which these windows were used for gas targets, vacuum chambers and other devices. The simplest solution of this problem which ensures that the thin window is in a vacuum-tight contact with the body of the apparatus is to solder the window to the body or to attach it with a suitable adhesive. However, this leads to a certain amount of contamination of the evacuated region during the soldering process and the contamination is difficult to remove. In the case of soldering, a further difficulty is encountered since it is difficult to attach the window uniformly over the perimeter. As a result, the thin window is nonuniformly loaded when the apparatus is evacuated. The heating of the material of the window during soldering may lead to nonuniform

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S/120/60/000/004/012/028  
E032/E414

## Thin Vacuum-Tight Windows

changes in its mechanical properties which are also undesirable, and non-demountable designs present difficulties when it is desired to replace the windows. Fig.1 (1 - window, 3 - thin foil, 4,5 - rubber packing) shows a demountable form of a window in which the thin foil has a cylindrical form and vacuum tightness is ensured by rubber packing. With a gas target of 5 cm in diameter, window height of 1.2 cm and window length along the circular periphery of 9 cm, an 8  $\mu$  thick iron foil withstood pressures in excess of 2.5 atm. With a gas target 10.6 cm in diameter and two windows of 1.7 cm x 5 cm and three windows 2 to 3 cm in diameter, a 30  $\mu$  copper foil withstood pressures up to 1.5 to 2 atm. This type of window was used by Bogdanov et al (Ref.1) in their studies of the proton spectra of the reaction  $\text{He}^4 + d$  at  $30^\circ$ . Fig.2 (1 - mica plate 10  $\mu$  thick, 4 - rubber packing) shows another type of target in which the window is plain and consists of a 10  $\mu$  thick mica plate maintained in position by brass grids on either side. The transparency of this arrangement was about 65%. The window is made vacuum-tight by rubber packing. A plane window

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S/120/60/000/004/012/028  
E032/E414

### Thin Vacuum-Tight Windows

designed for working pressures up to 10 atm is shown in Fig.3. Here again, the foil 3 forming the wall of the window is supported on a brass grid 4 having a transparency of 70%. Rubber packing ensures vacuum tightness and 30  $\mu$  copper foils and 10  $\mu$  iron foils were used with this design. This type of window was used by Bogdanov et al (Ref.3) in their studies of the polarization of neutrons produced in the  $T(p,n)He^3$  reaction. Fig.4 shows a similar window in which the foil 1 is supported by a tungsten grid 2 made of 0.2 mm diameter wire. Fig.5 shows a design of a thin window used with a  $\beta$ -spectrometer. The cylindrical wall of the window 3 was made from aluminium ribbon 0.5 mm thick; rubber packing ensures vacuum tightness. This window was used by Vlasov and Rudakov (Ref.4) in their studies of the angular  $\beta$ - $\gamma$  correlation in the case of  $Ba^{139}$ . Finally, Fig.6 shows the design of a gas target with a plane, thin wall 3 which was used by Bogdanov et al (Ref.5) in their studies of the spectrum of fast neutrons produced in the bombardment of deuterium by deuterons. Here a platinum foil 30  $\mu$  thick is soldered to the body. The foil is separated by a grid of tungsten

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E032/E414

# Thin Vacuum-Tight Windows

wires 3. The window was found to withstand pressures up to 4 atm. The above devices were assembled and prepared for experiments by A.A.Shubin. There are 6 figures and 5 Soviet references.

SUBMITTED: May 27, 1959

Fig.1.

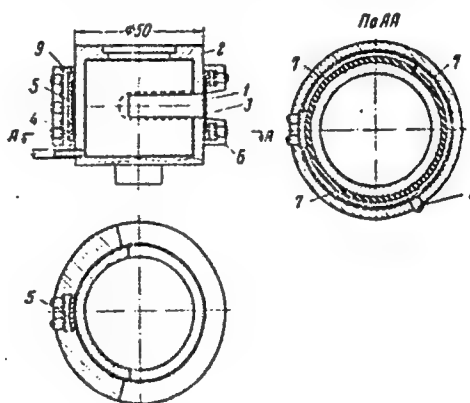


Рис. 1. Газовая мишень с тонкой цилиндрической стенкой

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E032/E414

Thin Vacuum-Tight Windows

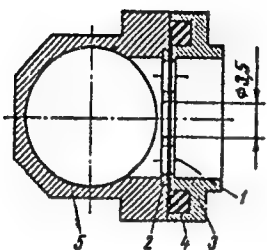


Рис. 2. Тонкая стенка счетчика с двумя поддерживающими решетками

Fig. 2.

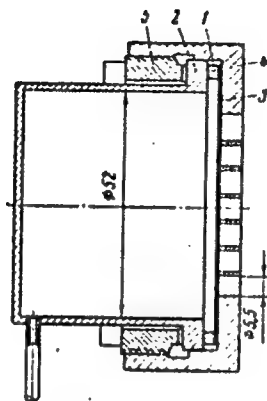


Рис. 3

Fig. 3.

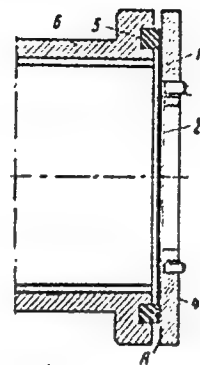


Рис. 4

Fig. 4.

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E032/E414

Thin Vacuum-Tight Windows

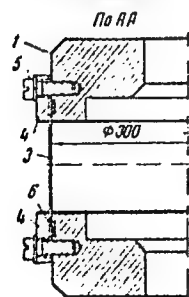
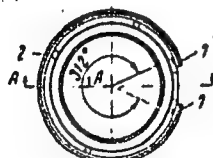


Рис. 5. Тонкая цилиндрическая стенка на камере липзового магнитного β-спектрометра

Fig. 5.

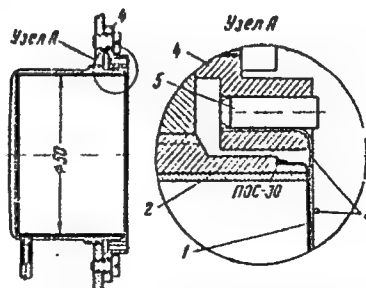


Рис. 6. Газовая мишень с принимающей тонкой стенкой, поддерживаемой сеткой из вольфрамовой проволоки  $\phi 0,25$  мм

Fig. 6.

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N, N.V.

PHASE I BOOK EXPLOITATION

SOV/5881

Kondrashev, Lev Fedorovich, and Nikolay Nikolayevich Khaldir

Oborudovaniye dlya yadernykh issledovaniy (Equipment for Nuclear Research) Moscow, Gosatomizdat, 1961. 146 p. 3700 copies printed.

Ed. (Title page): L. M. Nemenov, Doctor of Technical Sciences;  
Ed.: A. F. Alyab'yev; Tech. Ed.: N. A. Vlasov.

PURPOSE: The book is intended for physicists, design engineers, personnel working with particle accelerators, and teachers and students in related specialities at schools of higher education.

COVERAGE: The book deals with the problems of the designing, constructing, and adjusting of special equipment for operating cyclotrons and for conducting nuclear experiments. A description is given of the Cyclotron Laboratory of the Institut atomnoy energii im. I. V. Kurchatova AN SSSR (Institute of

Card 1/1

L 13373-63 EPR/BDS/EWT(1)/ES(v)/ES(w)-2 AENC/AFFTC/ASD/SSD Ps-4/  
 Pe-4/Pab-4 WW  
 ACCESSION NR: AP3002736 S/0120/63/000/003/0131/0133

AUTHOR: Lavrov, O. V.; Fedorov, N. D.; Khaldin, N. N. 72

TITLE: Quick-acting <sup>1</sup>vacuum valve 3

SOURCE: Pribery\* i tekhnika eksperimenta, no.3, 1963, 131-133

TOPIC TAGS: vacuum valve

ABSTRACT: A quick-acting vacuum slide valve for a pulse-type <sup>1</sup>ion source with a low ( $10^{-5}$  cm<sup>3</sup> per pulse) gas consumption is described. A 2-seal, 2-electromagnet design is used; the source aperture is open when the shutter slides between its extreme positions. Five microseconds elapse from the start of opening to the complete shutting of the 16-mm hole. Prospects of a better design, with one electromagnet, are indicated. Construction sketches are presented. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 01Aug62

DATE ACQ: 12Jul63

ENCL: 00

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

Card 1/1

LAVROV, O.V.; FEDOROV, N.D.; KHALDIN, N.N.

High-speed vacuum valve. Prib. i tekhn. eksp. 8 no.3:131-133  
My-Je '63. (MIRA 16:9)  
(Vacuum apparatus)

SOKOLOV, N.I.; FHALDIN, N.N.; ZELVYAKIN, P.V.; KISELYEV, V.I.

Vacuum slide-valves. Prib. i tekhn. eksp. 8 no.6:137-140  
M-D '63. (MIRA 17:6)

ACCESSION NR: AP4033108

S/0120/64/000/002/0061/0063

AUTHOR: Lamunin, V. I.; Rudakov, V. P.; Serikov, I. N.; Sokolov, N. I.;  
Khaldin, N. N.

TITLE: Vacuum scatter chamber for studying charged-particle reactions

SOURCE: Pribury\* i tekhnika eksperimenta, <sup>9-</sup>no. 2, 1964, 61-63

TOPIC TAGS: scatter chamber, vacuum scatter chamber, nuclear measurement,  
particle reaction, particle scattering

ABSTRACT: A scatter chamber (see Enclosure 1) consists of a steel housing 1, lower lid 2, and upper movable lid 3. The primary particle beam, restricted by graphite diaphragms 4 and 5, passes the filter chamber 6 and is collimated by a set of tantalum diaphragms. Then, the beam strikes the target and goes into the Faraday cylinder. Filter disks 7 are remote-operated by ShI-11 step-by-step telephone-type switches located inside the filter chamber. Diaphragms 8 and 10

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ACCESSION NR: AP4033108

belong with the collimator, while diaphragms 9 and 11 remove fringe particles. Detectors are fastened to the movable lid 3 by means of a nipple 15 which is positioned at an angle of  $10^\circ$  from the central plane of the chamber. The recording angle can be varied within  $10^\circ$ - $170^\circ$  without disturbing the vacuum. Remote control is provided for the detector position, target replacement, and filter changes in the primary and secondary beams. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 01Jun63

DATE ACQ: 11May64

ENCL: 01

SUB CODE: NS

NO REF SOV: 004

OTHER: 001

Card 2/3

L 27307-65 EWT(m)/EPA(w)-2/ENA(m)-2 Pub-10/Pt-10 IJP(c)  
ACCESSION NR: AP5002140 S/0120/64/000/006/0028/0029

AUTHOR: Antonov, A. V.; Vasil'yev, P. I.; Venikov, N. I.; Kalinin, S. P.;  
Sokolov, N. I.; Khaldin, N. N.; Khoroshavin, B. I.; Chumakov, N. I.

TITLE: Changing the IAE cyclotron into a controllable-ion-energy mode of operation

SOURCE: Pribery i tekhnika eksperimenta, no. 6, 1964, 28-29

TOPIC TAGS: cyclotron, IAE cyclotron

ABSTRACT: The adoption of rapid energy control in the 1.5-meter IAE cyclotron, with preservation of a good ( $\pm 0.3-0.4\%$ ) monoenergetic characteristic and short duration (2-4 nsec) of accelerated-ion clusters, was predicated upon the following changes introduced into the cyclotron: (1) Correction of magnetic field by the currents in additional windings within 5-14 koe; (2) Provision of a dee-type slit ion optical device suitable for the entire range of accelerated ions; (3) Replacing

Card 1/2

L 27307-65 ENT(m)/EPA(w)-2/EWA(m)-2 Pub-10/Pt-10 IJP(c)  
ACCESSION NR: AP5002140 S/0120/64/000/006/0028/0029

AUTHOR: Antonov, A. V.; Vasil'yev, P. I.; Venikov, N. I.; Kalinin, S. P.;  
Sokolov, N. I.; Khaldin, N. N.; Khoroshavin, B. I.; Churnakov, N. I.

TITLE: Changing the IAE cyclotron into a controllable-ion-energy mode of  
operation

SOURCE: Pribery i tekhnika eksperimenta, no. 6, 1964, 28-29

TOPIC TAGS: cyclotron, IAE cyclotron

ABSTRACT: The adoption of rapid energy control in the 1.5-meter IAE cyclotron, with preservation of a good ( $\pm 0.3-0.4\%$ ) monoenergetic characteristic and short duration (2-4 nsec) of accelerated-ion clusters, was predicated upon the following changes introduced into the cyclotron: (1) Correction of magnetic field by the currents in additional windings within 5-14 koe; (2) Provision of a dee-type slit ion optical device suitable for the entire range of accelerated ions; (3) Replacing

Card 1/2

ANTONOV, A.V.; VASIL'YEV, P.I.; VENIKOV, N.I.; KALININ, S.P.; SOKOLOV, N.I.;  
KHALDIN, N.N.; KHOROSHAVIN, B.I.; CHUMAKOV, N.I.

Adapting an IAE cyclotron to operations involving regulated ion  
energy. Prib. i tekhn. eksp. 9 no.6:28-29 N-D '64.

(MIRA 18:3)

1. Institut atomnoy energii AN SSSR.

ANDREYEV, S.N.; KHALDIN, V.G.; TERENIN, A.N.' akademik.

Development of trans-influence in absorption spectra of Pt (IV) complex compounds of the chloramine series. Dokl.AN SSSR 90 no.5:787-790 Je '53.  
(MLRA 6:5)

1. Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanova (for Andreyev, Khaldin).
2. Akademiya nauk SSSR (for Terenin). (Absorption spectra)  
(Platinum organic compounds)

ANDREYEV, S.M.; ~~KHALDIN, V.B.~~

Preparation of solid narrow-banded light filters for colorimetry in the spectral region of 3100 - 3600 Å. Trudy Kem.anal.khim.7:201-204 '56. (MLRA 9:9)

Leningradskiy gosudarstvennyy universitet, Khimicheskiy fakul'tet.  
(Light filters) (Colorimetry)

5 (4)

AUTHORS:

Andreyev, S. N., Stroganov, Ye. V.,  
Khalidin, V. G.

SOV/79-29-5-75/75

TITLE:

A Subject of Discussion (V poryadke diskussii). On the Applicability of the Equation by A. F. Kapustinskiy for the Computation of the Energy of Crystal Lattices of Complex Salts (O primenimosti uravneniya A. F. Kapustinskogo dlya rascheta energii kristallicheskikh reshetok kompleksnykh soley)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1753 - 1757 (USSR)

ABSTRACT:

This is a discussion dealing with the suggestion made by K. B. Yatsimirskiy that the radius of the complex ion be introduced into Kapustinskiy's equation for the computation of lattice energies of tetrahedric and octahedric complex salts. For this purpose the ion radius was determined from the X-ray structural data for 18 such complex ions and compared with the calculations from the Kapustinskiy formula (Table). For salts with ions  $\text{CrO}_4^{2-}$ ,  $\text{SO}_4^{2-}$ ,  $\text{ClO}_4^-$  and  $\text{MX}_6^{\pm 2}$  (of the structure type  $\text{K}_2[\text{PTCl}_6]$ ) a good agreement

Card 1/2

is obtained. Thus, the equation by A. F. Kapustinskiy may be

A Subject of Discussion. On the Applicability of the Equation by A. F. Kapustinskiy for the Computation of the Energy of Crystal Lattices of Complex Salts

SOV/79-29-5-75/75

well used for the determination of lattice energies of tetrahedric and octahedric complex salts. The authors thank K. P. Mishchenko for valuable critical remarks. There are 1 table and 11 references, 6 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet  
(Leningrad State University)

SUBMITTED: May 30, 1958

Card 2/2

USCOMM-DO-61,255



5(2)

AUTHORS:

Andreyev, S. N., Khaldin, V. G.,  
Stroganov, Ye. V.

SOV/79-29-6-6/72

TITLE:

Hydration Heats of the Ions  $\text{Me}(\text{H}_2\text{O})_6^{+2}$  (0 teplotakh gidratatsii ionov  $\text{Me}(\text{H}_2\text{O})_6^{+2}$ )

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 1798-1801  
(USSR)

ABSTRACT:

The investigation of the hydrate sheaths of ions in solutions was hitherto one of the most difficult problems, since physico-chemical methods are missing, which permit the investigation of the state of the water molecules isolated from the remaining mass of the solvent, which envelop the ions. The manifoldness of the chemical properties of the ions is another difficulty to be met with in this investigation. For the solution of this problem a many-sided investigation of the aquo-ions which are constituents of the crystal lattice of the crystal hydrates of different salts, and the investigation of the properties of the water molecules which envelop the ions in the crystal hydrates could be of decisive importance. On the basis of the papers by K. B. Yatsimirskiy (Refs 1-5) the authors arrived at the conclusion that the

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Hydration Heats of the Ions  $\text{Me}(\text{H}_2\text{O})_6^{+2}$

SOV/79-29-6-6/72

investigation of the hydration heats of the aquo-ions  $\text{Me}(\text{H}_2\text{O})_6^{+2}$  initiated by this scientist had to be continued. For this purpose one should start with the crystal hydrates, the crystal lattices of which are already thoroughly investigated with respect to their structure. Also in the present case the data of a X-ray analysis confirmed the presence of the ions  $\text{Me}(\text{H}_2\text{O})_6^{+2}$  in the molecule of the crystal hydrates. The addition energy of the water molecules onto the ions  $\text{Me}^{+2}$  as well as the hydration heat of the aquo-ions  $\text{Me}(\text{H}_2\text{O})_6^{+2}$  can be determined if the primary integral heats of solution and energy of the crystal lattices of the salts are known. On the basis of the primary integral solution heats of the crystal hydrates of the metal perchlorides the standard formation heats of the following compounds were determined:  $\text{Zn}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ ,  $\text{Cd}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ ,  $\text{Mn}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ ,  $\text{Fe}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ ,  $\text{Co}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ ,  $\text{Ni}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ . According to the equation of A. F. Kapustinskiy (Ref 10) the energy

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Hydration Heats of the Ions  $\text{Me}(\text{H}_2\text{O})_6^{+2}$

SOV/79-29-6-6/72

values of the crystal lattices of the crystal hydrates of the perchlorates Mg, Zn, Cd, Mn, Fe, Co, and Ni were determined, the formation heats of the aquo-ions  $\text{Mg}(\text{H}_2\text{O})_6^{+2}$ ,  $\text{Zn}(\text{H}_2\text{O})_6^{+2}$ ,  $\text{Cd}(\text{H}_2\text{O})_6^{+2}$ ,  $\text{Mn}(\text{H}_2\text{O})_6^{+2}$ ,  $\text{Fe}(\text{H}_2\text{O})_6^{+2}$ ,  $\text{Co}(\text{H}_2\text{O})_6^{+2}$ ,  $\text{Ni}(\text{H}_2\text{O})_6^{+2}$ , the energy values of the addition of water to the ions  $\text{Me}^{+2}$  in the gaseous phase and their hydration heats of the ions  $\text{Me}(\text{H}_2\text{O})_6^{+2}$ . These results are in agreement with those obtained by K. B. Yatsimirskiy. It was shown that the hydration heats of the aquo-ions form about the half of the hydration heat of the ions  $\text{Me}^{+2}$ . The water molecules in the aquo-ion  $\text{Me}(\text{H}_2\text{O})_6^{+2}$  are considerably polarized. These aquo-ions are so-called "Aqua Acids" (Refs 17-19). The authors express their gratitude to A. F. Kapustinskiy and K. P. Mishchenko for valuable advice. There are 3 tables and 19 references, 16 of which are Soviet.

Card 3/4

Hydration Heats of the Ions  $\text{Me}(\text{H}_2\text{O})_6^{+2}$

SOV/79-29-6-6/72

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: May 30, 1958

Card 4/4

ANDREYEV, S.N.; KHALDIN, V.G.

Complex formation in the system  $\text{CoCl}_2 - \text{HCl} - \text{H}_2\text{O}$ . Dokl.AN  
SSSR 134 no.2:345-348 S '60. (MIRA 13:9)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.  
Predstavleno akad. I.I.Chernyayevym.  
(Cobalt compounds)

ALDIKISV, J.F.; KHALDIN, V.O.; S. G. G. G., Fe.N.

Structure of the 1,6- $\pi$ -nucleon of the  $\text{Co}^{3+}$  ion in aqueous  
solutions. *Zhur. Khim. Fiz. 1:1-12 (a-1 '61.*  
(RE A 14:2)

1. *Lehrbuch der organischen Chemie* in. A.I. Zilberova.  
(Co<sup>3+</sup> compounds--Spectra)

ANDREYEV, S.N.; KHALDIN, V.G.

Complex formation in the system  $\text{CoBr}_2$  -  $\text{HBr}$  -  $\text{H}_2\text{O}$ .  
Dokl. AN SSSR 143 no.2:335-337 Mr '62. (MIRA 15:3)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.  
Predstavleno akademikom I.I.Chernyayevym.  
(Cobalt compounds)  
(Bromides)

ANDREYEV, S. N.; KHALDIN, V. G.

Composition and structure of complexes in aqueous solutions  
of bivalent cobalt halides. Zhur. ob. khim. 32 no.12:3845-3852  
D '62. (MIRA 16:1)

1. Leningradskiy gosudarstvennyy universitet.

(Cobalt halides) (Complex compounds)

ANDREYEVA, M.V.; KHALDIN, V.G.; ANDREYEV, S.N.

Spectral absorption band structure of  $\text{Co}(\text{H}_2\text{O})_6^{2+}$  and  $\text{Co}(\text{OH}_2)_6^{2+}$   
in solutions in the region 25 000 - 13 000  $\text{cm}^{-1}$ . Dokl. AN SSSR  
155 no.1:115-117 Mr '64. (MIRA 17:4)

1. Leningradskiy tekstil'nyy institut im. S.M.Kirova.  
Predstavleno akademikom I.I.Chernyayevym.



ACC NR: AP7000314

SOURCE CODE: UR/0413/66/000/022/0031/0031

AUTHOR: Buzikov, Yu. M.; Mozhayev, A. N.; Morozov, N. V.; Sirakov, L. S.; Khaldin, V. V.; Yakovlev, A. V.

ORG: None

TITLE: An installation for making a bellows from tubular stock. Class 7, No. 188473

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 22, 1966. 31

TOPIC TAGS: material deformation, pipe, bellows, hydraulic equipment, machine tool

ABSTRACT: This Author's Certificate introduces: 1. An installation for making a bellows from tubular stock by successive hydraulic formation of each corrugation. The unit contains a mandrel for the tubular blank with channels for fluid supply, a movable corrugation tool, a mechanism for moving the tube through the required spacing for the corrugations with a hydraulic drive and sealing rings. The unit is designed for increased production accuracy and for making bellows with various pitches and outside diameters without changing the mandrel. The installation is equipped with a pipe gripping device and the hydraulic cylinder is located inside the mandrel. There is a nut on the piston rod for regulating rod travel in the preliminary operation of setting up the material for shaping the bellows. The mechanism for moving the tube through the required corrugation pitch is connected to this nut.

Card 1/3

UDC: 621.774.3.06.408.8

ACC NR: AP7000314

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721710014-8"

2. A modification of this installation in which the tube clamping mechanism is made in the form of a stationary clamping disc connected to the hydraulic cylinder. This disc has grooves for sealing rings which clamp the tube section along the corrugations. The clamping device also includes a disc with a groove for a ring which compresses the uncorrugated section of the tube located on a sleeve moved by the piston in the hydraulic cylinder along its outer surface. 3. A modification of this installation in which the mechanism for moving the tube through the required pitch for the corrugations is made in the form of a fluted and threaded socket coupled with a fluted and threaded sleeve mounted on the piston rod to set its initial position when the tube is being moved. Two axially rotating cylinders are mounted on the cover of the hydraulic cylinder which moves the tube.

Card 2/3

L 07353-67  
ACC NR: AP6012172

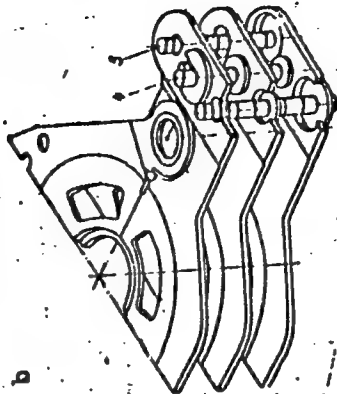
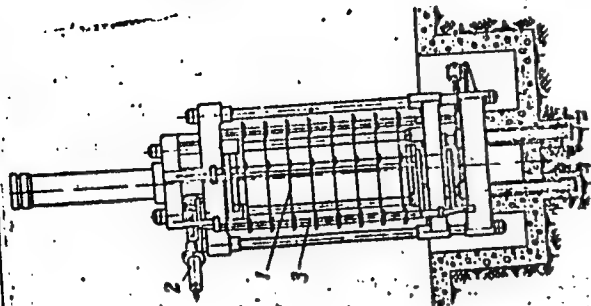


Fig. 1. 1 - a group of forming dies; 2 - mechanism for assembling and disassembling the dies; 3 - mechanism for separating the dies; 4 - movable rod; 5 - immovable rod

and are arranged in the opposite order. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 01Aug63

Card 2/2 afa

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721710014-8"

Vertical distribution of mysids in the Baltic Sea. Trudy  
VNIRO 42:75-83 '60. (MIRA 13:9)  
(Baltic Sea--Schizopoda)

KHALDINOVA, N.A., kand.biologicheskikh nauk

Some biological features of the Baltic cod. Trudy VNIRO  
42:109-120 '60. (MIRA 13:9)  
(Baltic Sea—Codfish)

KHALDINOVA, N.A., kand.biologicheskikh nauk

Conservation of young Baltic cod. . Trudy VNIRO 42:130-144 '60.

(MIRA 13:9)

(Baltic Sea--Codfish)

S/137/62/000/007/042/072  
A057/A101

AUTHORS: Tarasenko, I. I., Khaldina, O. N., Chebanov, V. M.  
TITLE: Strength of steel in complex stressed states in case of simple and complex courses of loading  
PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1962, 31, abstract 71180 (In collection: "Issled. po uprugosti i plastichnosti", I. L. Leningr. un-t, 1961, 205 - 212) NO. 1 -

TEXT: Strength characteristics of tube samples of steel 3 were investigated at simple and complex courses of loading in biaxial tension. The rated real stresses and deformations were determined by equations of the theory of maximum normal stress and maximum relative elastic elongation, maximum tangential stress, and the theory by Huber-Mises. At simple loading the course of loading in the axes  $\sigma_z - \sigma_\theta$  coincides with the radius starting from the origin of coordinates at certain angles  $\theta (\sigma_z / \sigma_\theta = \text{tg } \theta = \text{const})$ . The complex loading occurred in two ways: a) course  $\sigma_\theta = \sigma_z$  passed up to a definite load, and diverged in different sides of the line  $\sigma_\theta = \sigma_z$  perpendicularly to it until rupture; b) the

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S/137/62/000/007/042/072  
A057/A101

Strength of steel in...

first part of the course passed along the line  $\sigma_\theta = 0$  or  $\sigma_z = 0$  up to a certain load, after which another stress was increased at constant  $\sigma_\theta$  or  $\sigma_z$ . At the investigated courses if complex loading the strength of the steel decreased by 5.5% in comparison to the strength at simple loading; at simple loading the experimental data are in better agreement with Sen-Vennan conditions of plasticity than with Mises conditions; the shape of the curves  $\sigma_1 = \sigma_1(\epsilon_1)$  depends upon the course of loading. There are 5 references.

V. Osipov

[Abstracter's note: Complete translation]

Card 2/2

5(4)

AUTHORS:

Khaldna, Yu. L., Tal'vik, A. I.,  
Pal'm, V. A.

SOV/20-126-1-32/62

TITLE:

The Dependence of the Rate of Acidic-catalytical Reaction on the Basicity of the Reagent in the Case of the "General Acidic Catalysis" (Zavisimost' skorosti kislotno-katalicheskoy reaktsii ot osnovnosti reagenta v sluchaye "obshchego kislotnogo kataliza")

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 119-122 (USSR)

ABSTRACT:

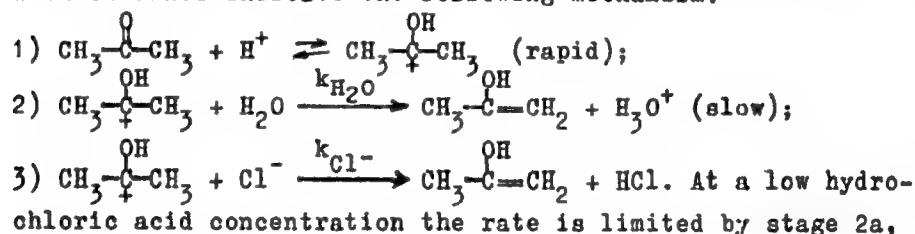
The conception of "general acidic catalysis" is defined as a reaction, the rate constant of which is representable by means of a polynomial, in which every term is proportional to the concentration of any acid existing in the system. In concentrated acidic solutions and in some water-free acids the logarithm of the rate constant in the case of many acidic-catalytical reactions depends linearly on the acidity function  $H_0$  of L. P. Hammet (Refs 2,3). The development of the reaction may be represented by the scheme (3)

1)  $B + H^+ \rightleftharpoons BH^+$  (rapid); 2)  $BH^+ + C \xrightarrow{k_0}$  reaction product (slow). In order to find out whether this scheme applies

Card 1/3

The Dependence of the Rate of Acidic-catalytical Reaction on the Basicity of the Reagent in the Case of the "General Acidic Catalysis" SOV/20-126-1-32/62

to all general acidic catalyses, the kinetics of the enolization of acetone in an aqueous hydrochloric acid solution with concentrations of from 0.04-11.2-normal was investigated at 15, 25, and 35°. The reaction rate was measured spectrometrically according to the decrease of the bromine content by brominating the acetone. The reaction rate of bromation is, according to reference 6, equal to that of enolization (Fig 1). In the case of very high concentrations of hydrochloric acid, the rate constant is proportional to the concentration of the chloric ion and depends no longer on acidity (Table 1). The data obtained indicate the following mechanism:



Card 2/3

The Dependence of the Rate of Acidic-catalytical  
Reaction on the Basicity of the Reagent in the Case of the "General Acidic  
Catalysis" SOV/20-126-1-32/62

and at high concentration by stage 2b. It is concluded here-  
from that in the case mentioned the so-called "general  
acidic catalysis" does not differ basically from "specific  
acidic catalysis", in which the rate constant is proportional  
to the concentration of the hydrogen ion. The rate of the  
reaction is limited by the concentration of the protonized  
form of the reagents. The catalytic activity of the medium  
is proportional to its acidity and not to the concentration  
of an arbitrary acid. Thus, the reaction mechanisms sug-  
gested in references 7-11 are refuted. There are 1 figure,  
1 table, and 19 references, 5 of which are Soviet.

ASSOCIATION: Tartuskiy gosudarstvennyy universitet (Tartu State University)

PRESENTED: December 24, 1958, by V. N. Kondrat'yev, Academician

SUBMITTED: December 11, 1958

Card 3/3



PAL'M, V.A. [Palm, V.]; KHALDNA, Yu.L. [Haldna, J.]; TAL'VIK, A.I.  
[Talvik, A.]; MEY, A.E. [Mei, A.]

Protonation of carbonyl compounds and the mechanism of the  
acid hydrolysis of esters. Zhur. fiz. khim. 36 no.11:  
2499-2501 N'62. (MIRA 17:5)

1. Tartuskiy gosudarstvennyy universitet.

KHALDNA, Yu.L. [Haldna, J.]; PAL'IN, V.A.

Problem on the reduction of basicities to a single standard state.  
Study of the basicity of acetone. Dokl. AN SSSR 135 no.3:667-670  
N '60. (MIRA 13:12)

1. Tartuskiy gosudarstvennyy universitet. Predstavleno akad. V.N.  
Kondrat'yevy.:  
(Acetone) (Bases (Chemistry))

KHALDNA, Yu.L. [Haldna, J.]

Measurement of the temperature dependence of the basicity constant  
of m-nitroaniline. *Izv.vys.ucheb.zav.;khim. i khim.tekh.* 6  
no.2:233-235 '63. (MIRA 16:9)

1. Tartuskiy gosudarstvennyy universitet, laboratoriya  
khimicheskoy kinetiki i kataliza.  
(Aniline) (Basicity)

KHALDNA, Yu.L. [Haldna, J.]

Improving the operation of a serial ultrathermostat. Zhur.fiz.khim.  
37 no.7:1644-1645 J1 '63. (MIRA 17:2)

1. Tartuskiy gousdarstvennyy universitet,

KHALDNA, Yu.L. [Haldna, U.]; KUURA, Kh.I. [Kuura, H.]; LAANESTE, Kh.E.  
[Laaneste, H.]; PYUSS, R.K. [Puss, R.]

State of small additions of nitromethane in aqueous solutions  
of sulfuric and hydrochloric acids. Zhur. fiz. khim. 38  
no.4:863-870 Ap '64. (MIRA 17:6)

1. Tartuskiy gosudarstvennyy universitet.

KHALDNA, Yu.L. [Haldna, J.]; KUURA, Kh.I. [Kuura, H.]

Synthesis and study of the basicity of 6-chloro-2-nitroaniline.  
Zhur. ob. khim. 34 no.11:3694-3696 N '64 (MIRA 18:1)

1. Tartuskiy gosudarstvennyy universitet.

KHALINA, Yu.L. [Haldna, J.]; TUULMETS, A.V.; LAANESTE, Kn.E. [Laaneste, H.];  
TIMOTKHEUS, Kh.R. [Timotheus, H.]

Gas liquid chromatographic separation of mixtures of alcohols,  
ketones, and nitro compounds. Izv. vys. ucheb. zav., khim. i  
khim. tekhn. 7 no.5:865-867 '64 (MIRA 18:1)

1. Laboratoriya khimicheskoy kinetiki i kataliza Tartuskogo  
gosudarstvennogo universiteta.

KHALDNA, Yu.L. [Haldna, J.]; PYUSS, R.K. [Puss, R.] (Tartu)

Heats of mixing of small amounts of acetone, ethanol dioxane, and  
nitromethane with the  $H_2O - H_2SO_4$  system. Zhur. fiz. khim. 38 no.  
12:2807-2811 D '64. (MIRA 18:2)

1. Tartuskiy gosudarstvennyy universitet.



KHALDRE, Kh.Yu.; KHOZHLOV, R.V.

Stability of maser oscillations. Izv. vys. ucheb. zav.; radiofiz.  
1 no.5/6:60-65 '58. (MIRA 12:8)

1. Moskovskiy gosudarstvennyy universitet.  
(Molecular beams)

AUTHORS: Khaldre, Kh.Yu., and Khokhlov, R.V. SOV/55-58-1-20/33

TITLE: On Higher Spectral Components in a Molecular Generator (O vysshikh spektral'nykh komponentakh kolebaniy v molekulyarnom generatore)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya fiziko-matematicheskikh i yestestvennykh nauk, 1958, <sup>3</sup>Nr 1, pp 157-162 (USSR)

ABSTRACT: The authors consider the new molecular generator described in [Ref 1] and [Ref 2], the phugoid motions of which are described by a non-linear equation of second order. In the first approximation, besides of the first harmonic the next one (third one) is determined, where it appears that the amplitude of this third harmonic has the order  $10^{-18}$  in comparison to the amplitude of the first harmonic. It is shown that this third harmonic is the greatest of the higher harmonics, but it remains unanswered whether the sum of the fifth, seventh etc. harmonic perhaps has an essential influence.  
There are 3 Soviet references.

ASSOCIATION: Kafedra kolebaniy (Chair of Oscillations)

SUBMITTED: April 27, 1957

Card 1/1

*KHALDERE, Kh. Yu.*

IZBASH, S.V., professor, doktor tekhnicheskikh nauk; KHALDERE, Kh.Yu.,  
inzhener; IVANOV, V.G., inzhener.

Rock fill for blocking river channels with abundant water.

Gidr.stroi. 23 no.4:12-14 '54.

(MLRA 7:7)

(Barrages)

KHALIL, Kh. Yu.

KHALIL, Kh. Yu.: - "The hydraulics of designing housings to cover the streams of  
of large rivers during the construction of hydroelectric power plants". Moscow, 1955.  
in Higher Education USSR, Moscow Order of Lenin Power Engineering Institute V. I.  
Solotov, Chair of Hydraulics. (Dissertation for the Degree of Candidate of  
Technical Sciences)

SO: Knizhnaya Letopis', No. 40, 1 Oct 55

KHALDRE, Kh.

124-11-12928

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p. 93 (USSR)

AUTHOR: Khaldre, Kh.

TITLE: To the Problem of the Non-Uniform Turbulent Seepage.  
(K. voprosu o neravnomernoy turbulentnoy fil'tratsii)

PERIODICAL: Sb. nauchn. tr. Est. s.-kh. akad. (Eesti põllumajanduse Akad. teadus-  
like tööde kogumik) 1956, Vol 2, pp.275-283

ABSTRACT: The paper deals with the clarification of the magnitude of the turbulent permeability coefficient in a uniform and non-uniform motion. Several investigators (N. P. Puzerevskiy, K. A. Mikhaylov, P. I. Gordiyenko) estimate that the seepage coefficient for turbulent, non-uniform, but slowly varying seepage may be considerably smaller than for a uniform seepage. The Author performed tests to determine the permeability (seepage) coefficient for a turbulent, non-uniform, but slowly varying motion in a plane, free-surface seepage flow. A three-dimensional cage of wooden laths served as the "porous layer." The values of the permeability coefficients obtained on the basis of the Bernoulli equation (for several values of the porosity) coincide

Card 1/2

To the Problem of the Non-Uniform Turbulent Seepage (continued)

with the permeability coefficients of a uniform turbulent flow.  
Bibliography: 5 references. (N. V. Danil'chenko)

Card 2/2

IZBASH, S.V., doktor tekhnicheskikh nauk, professor; KHALDRE, Kh.Yu., kandidat tekhnicheskikh nauk.

Evaluating the conditions for river damming and fill materials. Gidr.  
stroitel.25 no.5:6-10 Je '56. (MIRA 9:9)  
(Dams)

IZBASH, S.V.; ~~KHALDRE~~, Kh.Yu.. Primal uchastiye: LEBEDEV, I.V.,  
kand.tekhn.nauk; PASHKOV, N.N., red.; LARIONOV, G.Ye., tekhn.red.

[Hydraulics of river damming] Gidravlika perekrytiia rusel rek.  
Moskva, Gos.energ.izd-vo, 1959. 207 p. (MIRA 12:8)  
(Dams)

ACC NR: AP7004967

SOURCE CODE: UR/0048/66/030/009/1443/1445

AUTHOR: Pung, L.A.; Khaldre, Yu. Yu.

ORG: none

TITLE: Electron paramagnetic resonance investigation of electron and hole processes in KCl:Ag and NaCl:Ag crystals /Report, Fourteenth All-Union Conference on Luminescence (Crystal Phosphors) held at Riga, 16-23 Sept. 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 9, 1966, 1443-1445

TOPIC TAGS: luminescent crystal, sodium chloride, potassium chloride, silver, bromine, x ray irradiation, luminescence center, impurity center, EPR, ABSORPTION LINE, CRYSTAL ABSORPTION

ABSTRACT: The authors have measured EPR absorption at temperatures from 100 to 400° K in KCl:Ag and NaCl:Ag crystals that had been excited by irradiation with x-rays at 77° K. The crystals were grown by the Kyropoulos technique from cp materials. The KCl melt contained 0.7 mole percent of Ag, and the NaCl melt contained 0.1 mole percent of Ag. The authors have described their apparatus and experimental technique elsewhere (Tr. In-ta fiziki i astron. AN EstSSR, No.31, 133 (1966)). Strong EPR absorption by  $\text{Ag}^{2+}$ ,  $\text{Cl}_2^-$ , and  $\text{BrCl}^-$  centers was observed in both materials, and EPR absorption by  $\text{Ag}^0$  centers was observed in the KCl:Ag, but not in the NaCl:Ag crystals (bromine was present as an impurity in all the crystals). The  $\text{Cl}_2^-$  centers were most prominent in the low temperature portion of the investigated temperature range, the  $\text{BrCl}^-$  center

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ACC NR: AP7004967

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721710014-8"

were most concentrated at the middle temperatures and the  $\text{Ag}^{2+}$  centers were most concentrated near the high temperature portion of the range. The  $\text{Ag}^0$  center concentration in the KCl:Ag crystals decreased monotonically with increasing temperature over the entire investigated range. The width and shape of the  $\text{Ag}^0$ ,  $\text{Ag}^{2+}$ , and  $\text{BrCl}^-$  EPR absorption lines remained constant over the full temperature range, but the  $\text{Cl}_2^-$  line in KCl:Ag increased in width with increasing temperature, beginning at about 220° K. It is concluded from the present data that the relaxation in KCl:Ag at 230-270° K is due to a hole process, and from the present data together with other data in the literature, that the relaxation in KCl:Ag at 300-380° K and in NaCl:Ag at 200-250° K is due to an electron process. The failure to observe  $\text{Ag}^0$  centers in NaCl:Ag is ascribed to broadening of the EPR line with consequent reduction of its intensity below the noise level as a result of interaction of the unpaired electrons in the shallow activator traps with the surroundings. The authors thank Ch.B.Lushchik for his interest in the work and for valuable advice. Orig. art. has: 2 figures.

SUB CODE: 20

SUBM DATE: none

ORIG. REF: 006

OTH REF: 002

Card 2/2



ACC NR: AP7004968

NaCl:Pb at some  $10^9$  higher. In the activated KCl crystals, detrapping of holes took place at temperatures ranging from 190 to 210° K. Decrease of the  $\text{Cl}_2^-$  center concentration in pure KCl began at 125° K. The present results cannot be reconciled with the finding of C.J.Delbecq, B.Smaller, and P.H.Yuster (Phys.Rev., 111, 1235 (1958)) the delocalization of  $V_K$  centers in pure KCl takes place at 130° K. No changes (except in intensity) in the  $\text{Cl}_2^-$  EPR spectrum were observed at temperatures below 220° K; the hyperfine structure of the EPR line broadened at higher temperatures, indicating a change in the surroundings of the holes, i.e., their detrapping. The decrease in the  $\text{Cl}_2^-$  center concentration with increasing temperature at lower temperatures is ascribed to recombination with electrons released from electron traps. The  $\text{Cl}_2^-$  centers were found to transform at certain temperatures into new centers that were more stable; this resulted in a stepwise shape of the concentration - temperature curve. The temperature at which self-trapped holes were freed did not depend strongly on the impurities in the crystals. The authors thank Ch.B.Lushchik for a valuable advice and discussions. Orig. art. has: 2 figures.

SUB CODE: 20      SUBM DATE: none      ORIG. REF: 002      OTH REF: 001

Card 2/2

KHALEBSKIY, N.T., inzh.

Calculating the dimension by rollers for helical gears with an  
uneven number of teeth. Vest. mashinostr. 43 no.10:18-19 0 '63.  
(MIRA 16:11)

Khalemskiy, N. A.

25-10-2/41

AUTHOR: Poltoratskiy, A. I., Chief editor of the journal "Vitchizna" Khalemskiy, N. A., (Kiyev)

TITLE: The Prosperity of the Soviet Ukraine (Tsvetet Sovetskaya Ukraina)

PERIODICAL: Nauka i Zhizn', 1957, <sup>24</sup>/<sub>1</sub> # 10, pp 2-7 (USSR)

ABSTRACT: The Ukrainian SSR is a most highly industrialized but at the same time an agricultural country; it is in possession of huge natural resources and occupies a leading position in the scientific, technical and educational field. The Ukraine occupies the fourth place in the world as far as the output of coal is concerned and the third place with regard to pig iron. About one fifth of the entire production of the USSR comes from the Ukrainian SSR. In 1956, for instance, the Ukraine supplied 48% of the all-union output of pig iron, almost 38% of steel, 56% of iron ores and 32% of coal. The production of the entire industry of the Ukraine increased by 18 times compared with 1913.

Hydro-electric power plants have been built on the Dnepr river, the biggest of them being the Kakhovka plant. The

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Kremenchug and the Dneprodzerzhinsk hydro-electric power plants are under construction and the construction of the Kanev and the Kiyev power stations will soon follow. About 36.6% of the electric power generated in the Ukraine comes from the thermal power plants of the Donbas district. There are now 11 economic districts in the Ukraine, each district is specialized in certain industrial branches. The Kherson district, for example, concentrates on ship-building, construction of gas turbines, and textiles and there are good prospects for opening up a ferrous metallurgical industry. The Dnepropetrovsk Factory for Metal Constructions (Dnepropetrovskiy zavod metallokonstruktsiy) is well known all over the world. A member of this factory invented a marking stand for the production of blast furnace parts.

In the field of agriculture, efforts are being made to catch up with the USA in the production of milk, meat and butter by 1960. In 1956 the area used for growing corn was increased by 4.2 times.

There are 17 scientific research institutes in the Ukrainian Republic and agricultural specialists are trained

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liminary studies for the creation of an electronic computer were made here as well. About three quarters of the population were illiterate before the Revolution took place, now the Ukrainian SSR has produced 32 thousand scientists. There are 6 photographs.

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